

WHAT IS CLAIMED IS:

1. A process for producing composite moldings, comprising
  - 5 a) optionally, inserting a film or a cloth into a mold,
  - b) forming a soft elastic synthetic material having low hardness, from 1 Shore 00 (according to ASTM-D 2240) to 100 Shore A (according to DIN 53 505) in the mold,
  - 10 c) enlarging the volume of the mold from b) after a predetermined dwell-time based on the soft elastic synthetic material in b),
  - and
  - 15 d) forming a hard polyurethane having a density of from  $800 \text{ kg/m}^3$  to  $1600 \text{ kg/m}^3$  and having a hardness of from 20 Shore A (according to DIN 53 505) to 100 Shore D (according to DIN 53 505) in an unpressurized manner in the available volume of the mold,
  - 20 wherein the hardness of the soft elastic synthetic material formed in b) is at least 10% of the hardness of the polyurethane formed in d).
2. The process of Claim 1, wherein the hard polyurethane formed in d)  
25 has a density of from  $1050 \text{ kg/m}^3$  to  $1250 \text{ kg/m}^3$ .